

**TITLE OF INVENTION:** Detachable Weights for Stabilizing  
Intravenous Stands

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# **DETACHABLE WEIGHTS FOR STABILIZING INTRAVENOUS STANDS**

## **BACKGROUND OF THE INVENTION**

### Field of the invention

5 [0001] This invention relates generally to intravenous stands and more particularly to a weighted device for demountable attachment to the carriages of mobile intravenous stands to improve the stability thereof by lowering the center of gravity.

### Description of the prior art

10 [0002] Mobile Intravenous (I.V.) stands are routinely used in hospital settings and patient care facilities to carry medicinal agents, blood products, and medical equipment along with the patients when they are being transported from one place to another. Such stands typically include a wheeled carriage having  
15 a pole extending vertically therefrom with radially extending arms at the top of the pole. Numerous types of medical devices are carried on the arms of the I.V. stands and are attached to the patient being transported with such devices, including  
intravenous pumps for supply medication to the patient and/or  
20 equipment for monitoring the patient's vital signs. The medical devices attached to the arms at the top of the pole will raise the center of gravity of the I.V. stand an amount determined by

the weight of the attached medical devices. Raising the center of gravity can make the I.V. stand top heavy to a point where it becomes difficult to safely move it and hazardous under some conditions. The attendant who is transporting the patient and  
5 the I.V. stand must be extra careful to navigate the stand around or over any obstacles on the floor. Entering or leaving an elevator is particularly hazardous due to the opening between the floor and the elevator. If an I.V. stand should topple over while being transported along with a patient, serious injury to  
10 the patient and/or the medical staff can result and monitoring equipment can be damaged.

[0003] The problem with I.V. stand stability was addressed in U.S. Patent No. 4,905,944 by disclosure of an especially configured carriage having a lowered frame which lowered the  
15 center of gravity of the stand. While this approach improved I.V. stand stability somewhat, it is not believed to have completely solved the problem in that the stand could still be unstable if the weight of the equipment carried by the stand were above a medial amount. Also, if this approach were to become a  
20 standard, the many I.V. stands already in use would need to be replaced or modified to include the new carriages and this would be costly. Therefore, a need exists for a new and useful weighted device for demountable attachment to existing I.V. stands to improve the stability thereof.

## SUMMARY OF THE INVENTION

[0004] The present invention discloses a weight member configured for detachable mounting on the carriages of I.V. stands to lower the center of gravity thereof to improved stability of the stands so that they can be safely moved from place to place. The weight member is preferably a clamshell structure having two bodies of any suitable configuration such as semi-circular. Preferably, the two bodies are interconnected by a hinge so that they can be swung away from each other into an open position and swung toward each other into a closed position. The two bodies of the weight member each have a mating surface and those surfaces are in co-facing contiguous engagement with each other when the weight member is in the closed position. Preferably, the mating surfaces form a parting line between the two bodies with the hinge being mounted on adjacent ends of the two bodies proximate one end of the parting line, and a latch is provided on the opposite adjacent ends of the two bodies proximate the opposite end of the parting line. When the latch is closed, the two bodies of the weight member will be held in the closed position and opening of the latch allows the two bodies to be swung away from each other into the open position. Preferably, each of the mating surfaces of the two bodies has a notch formed intermediate its opposite ends so that when the weight member is closed and

mounted on the I.V. stand, the pole of the stand will extend upwardly through the opening formed by the aligned notches.

5 [0005] The weight member is mounted on an I.V. stand by having the two bodies thereof swung into the open position so that they can be maneuvered around the upstanding pole of the stand and placed in resting engagement on top of the stand's carriage. The bodies are then swung toward each other into the closed position and the latch is operated to secure the weight member on the  
10 carriage. By reversing this procedure, the weight member is easily removed from the I.V. stand for cleaning and sanitation purposes. A plurality of weight members, or members having different weights, can be provided to adjust the center of gravity as needed.

15 [0006] It is preferred that the mating surfaces of the two bodies of the weight member and the notches formed in the bodies have a liner of resiliently deformable material such as rubber affixed thereto. Such a liner will take up any slack resulting from manufacturing tolerances and provide a rattle-free tight fit  
20 around the pole of the I.V. stand and tight fitting contiguous engagement of the mating surfaces of the two bodies.

[0007] A second embodiment of the weight member of the present invention is disclosed as having two separate bodies of any

suitable configuration. As in the preferred embodiment, the two separate bodies are provided with mating surfaces having notches with the surfaces and notches being lined with a resiliently deformable material. Mounting of the two separate bodies on an I.V. stand is accomplished by placing them atop the stand's carriage on diametrically opposed sides of the upstanding pole and moving them radially toward each other into a closed position. Suitable latches are provided on opposite sides of the two separate bodies to releasably hold them in the close position.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Fig. 1 is a perspective view of a typical I.V. stand with the preferred embodiment of the weigh member of the present invention mounted thereon.

5 [0009] Fig. 2 is plan sectional view taken along the line 2-2 of Fig. 1 and showing the weight member in the open position.

[0010] Fig. 3 is a view similar to Fig.2 showing another embodiment of the weight member of the present invention.

10 [0010] Fig. 4 is a fragmentary side elevational view of the weight member of Fig. 3.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0011] Referring more particularly to the drawings, Fig 1 shows a typical mobile intravenous (I.V.) stand 10 with the weight member 12 of the present invention mounted thereon. The I.V. stand 10 includes a wheeled carriage 14 having legs 16 extending radially from a central hub 18 (not shown, see Fig. 2) with a caster 20 mounted on the extending end of each leg. A pole 22 is mounted in the hub 18 of the wheeled carriage 14 and extends vertically upwardly therefrom. A plurality of radially extending arms 24, usually four in number, are carried on the upper end of the pole 22 and each arm has a hook 26 mounted on its extending end. As is known, medical devices (not shown) such as intravenous pumps for supplying medication to a patient and/or equipment for monitoring the patient's vital signs are hung on the hooks 26.

The stand 10 is a mobile stand of the type which is routinely used in hospital settings and patient care facilities to move whatever medical equipment is connected to a patient along with patients when they are being transported from one place to another. The medical devices attached to the arms 24 at the top of the pole 22 will raise the center of gravity of the I.V. stand 10 an amount determined by the weight of the attached medical devices. Raising the center of gravity can make the I.V. stand 10 top heavy to a point where it becomes difficult to safely move



it and hazardous under some conditions. The instability problem of I.V. stands is overcome by use of the weighted member 12 as will now be described.

[0012] The weight member 12 is preferably a clamshell structure having two pieces, or bodies 28 and 30 interconnected by a hinge 32 so that the two bodies can be swung away from each other into an open position shown in Fig. 2 and swung toward each other into a closed position as shown in Fig. 1. As seen in Fig. 2, the two bodies 28 and 30 of the clamshell structure have mating surfaces 34 and 36 respectively and those surfaces each have a notch 37 formed therein intermediate their opposite ends. The mating surfaces 34 and 36 and the notches 37 formed therein preferably have a liner 38 of resiliently deformable material such as rubber affixed thereto for reasons which will hereinafter be described. When the weight member 12 is in the closed position, the mating surfaces 34 and 36 form a parting line between the two bodies 28 and 30 and the notches 37 are aligned to form an opening through the weight structure 12. The hinge 32 is mounted on adjacent ends of the two bodies 28 and 30 proximate one end of the parting line and a latch 40 is mounted on the body 30 proximate the other end of the parting line. The latch has a loop 42 which engages a notch 44 formed in the periphery of the other body 28 to releasably clamp the weight member 12 in the closed position.

[0013] To mount the clamshell weight member 12 on the I.V. stand 10, the latch 40 is opened and the two bodies 28 and 30 are swung away from each other into the open position. When opened, the clamshell weight member 12 is moved into a straddling position about the pole 22 of the stand 10 and is placed in a resting position atop the wheeled carriage 14. Then the two bodies 28 and 30 are swung toward each other to close the weight member 12 and move the notches 37 into a circumscribing position about the pole 22. Closing the latch 40 clamps the two bodies 28 and 30 together and holds the weight member 12 in the closed position. The liner 38 affixed to the mating surfaces 34 and 36 and in the notches 37 of the two bodies 28 and 30 will take up any slack resulting from manufacturing tolerances to provide a rattle-free tight fit of the notches 37 around the pole 22 of the I.V. stand 10 and tight fitting contiguous engagement of the mating surfaces of the two bodies.

[0014] The two bodies 28 and 30 of the weight member 12 can be of any suitable configuration, however, it is preferred that they be of the planar semi-circular configuration shown in the drawings. Similarly, the mating surfaces 34 and 36 of the two bodies 28 and 30 are preferably linear and the notches 37 are semi-circular.

[0014] Reference is now made to Figs. 3 and 4 which show a second embodiment of the weight member of the present invention that is

identified generally by the reference numeral 46. The weight member 46 is formed of two separate bodies 48 and 50 having mating surfaces 52 and 54 respectively and those surfaces each have a notch 56 formed therein intermediate their opposite ends.

5 The mating surfaces 52 and 54 of the two separate bodies and the notches 56 formed in those surfaces, preferably have a liner 58 of resiliently deformable material, such as rubber, affixed thereto for the reasons discussed above with reference to the previously describe embodiment.

10 [0015] Mounting of the two separate bodies 48 and 50 on the I.V. stand 10 is accomplished by placing them atop the carriage 14 on diametrically opposed sides of the upstanding pole 22 and moving them radially toward each other into a closed position. Suitable latches, such as the illustrated hook and eye latches 60 are  
15 provided on opposite sides of the two separate bodies 48 and 50 to releasably hold them in the closed position.

[0016] While the principles of the invention have now been made clear in illustrated embodiments, many modifications will be obvious to those skilled in the art which do not depart from  
20 those principles. The appended claims are therefore intended to cover such modifications within the limits only of the true spirit and scope of the invention.